ABSTRACT

SEEKING AND TRACKING CONTROL FOR LOCKING TO TRANSMISION PEAK FOR A TUNABLE LASER

[0051] A servo or control technique and apparatus for performing wavelength locking employs the phase-shift modulation scheme to adjust one or more optical elements in the laser cavity to lock the lasing frequency toward a desired channel frequency. A controller comprises a high bandwidth mode and a low bandwidth mode. When initially locking to a new channel, the high bandwidth controller mode may be used to supply more energy to drive an actuator to achieve faster seeking. When an error signal approaches within a pre-defined threshold of zero error, the controller may be switched to a lower bandwidth mode supplying less power to the actuator to softly approach the target frequency and avoid overshoot. The lower bandwidth controller mode may keep the noise level lower and provide better frequency tracking stability to the tunable laser.